

**REMARKS**

Claims 17, 25, 26, and 27 are currently being amended pursuant to 37 C.F.R. §1.114. These amendments do not introduce new matter within the meaning of 35 U.S.C. §132. Accordingly, Applicant respectfully requests the Examiner to enter the amendments.

**1. Rejection of Claim 26 Under 35 U.S.C. § 112, 1<sup>st</sup> Paragraph**

The Office Action states,

Claim 26 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The recitation of a 'combination' of 'extruding, (and) injection molding' is not shown by the Specification, as originally filed, at page 21 (lines 16-21) as applicants contend.

**RESPONSE**

Applicant respectfully traverses the rejection of claim 26.

In particular, there is no *in haec verba* requirement to satisfy the requirements of 35 U.S.C. 112, 1<sup>st</sup> paragraph. In fact, "If applicant amends the claims and points out where and/or how the originally filed disclosure supports the amendment(s), and the examiner finds that the disclosure does not reasonably convey that the inventor had possession of the subject matter of the amendment at the time of the filing of the application, **the examiner has the initial burden of presenting evidence or reasoning to explain why** persons skilled in the art would not recognize in the disclosure a

description of the invention defined by the claims." See MPEP §2163 (II) (A), and §2163.04. Accordingly, since the current rejection falls short of the required showing of evidence or reasoning, as well as why a person skilled in the art would not recognize in the disclosure a description of the currently claimed process, Applicant respectfully believes the current rejection should be withdrawn.

Therefore, Applicant respectfully believes claim 26 fully complies with 35 U.S.C. §112, and kindly requests the Examiner to withdraw the current rejection.

**2. Rejection of Claims 17-20, 22, and 25-30 Under 35 U.S.C.**

**§102(b)**

The Office Action states,

Claims 17-20, 22 and 25-30 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Fischer et al. (US 6,248,829), newly cited.

Note the Abstract, column 1 (lines 35-38 and 47-56), column 2 (lines 30-51), column 3 (line 56) to column 4 (line 5), column 4 (line 38) to column 9 (line 67), column 12 (lines 32-36), the many Examples and the claims, particularly claim 6, of the patent.

**RESPONSE**

Applicant respectfully traverses the rejection of claims 17-20, 22, and 25-30.

For a reference to anticipate an invention, all of the elements of that invention must be present in the reference. The test for anticipation under section 102 is whether each and every element as set forth in the claims is found, either expressly or inherently, in

a single prior art reference. *Verdegaal Bros. V. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The elements must also be arranged as required by the claim. *In re Bond*, 15 USPQ2d 1566 (Fed. Cir. 1990).

Applicant respectfully believes U.S. Patent 6,248,829 (herein referred to as "Fischer, et al.") fails to disclose, teach, or suggest Applicant's currently claimed propylene copolymer composition comprising propylene copolymers A) and B), the propylene copolymers A) and B) are present as separate phases comprising a portion of n-hexane soluble material less than or equal to 2.6% by weight, wherein the propylene copolymer composition is obtained from **a two-stage or multistage polymerization process** comprising a catalyst system comprising a **metallocene compound**, wherein the catalyst system is used in each polymerization stage.

In fact, Fischer, et al. discloses in col. 11, line 63 - col. 12, line 11,

The preparation of the novel polymers of propene can be carried out by a number of processes which are likewise subject matter of the present invention. In one of these processes, the propene copolymers (A) and (B') or the propene homopolymer (B') obtained with the aid of the above-described metallocene catalyst system are, **after they have been prepared separately, physically mixed with one another** at from 150 to 300° C., in particular from 180 to 280° C. In this way, the novel polymers of propene **are formed as a blend** of the propene copolymer (A') and the propene copolymer (B') or the propene homopolymer (B').

**The physical mixing** is carried out in customary mixing

equipment, for example in kneaders, Brabender mixers, in mills or else in extruders, preferably in extruders. Here, twin-screw extruders have been found to be particularly advantageous. (Emphasis added)

However, Applicant's currently claimed copolymer compositions are obtained from a **two-stage or multistage polymerization process**. Accordingly, for this reason alone, Applicant respectfully believes the current rejection should be withdrawn.

Notwithstanding, Applicant has unexpectedly found the currently claimed propylene copolymer compositions comprise much lower tensile E modulus values, much higher Charpy impact toughness values, and much higher Charpy notched impact toughness values than the compositions of Fischer, et al. In particular, Examples 4-8 in Fischer, et al. disclose tensile E modulus values ranging from 1173-1326 MPa (ISO 527), while Applicant's exemplary propylene copolymer composition comprises a tensile E modulus value of 481 MPa (ISO 527). Accordingly, Applicant's exemplary copolymer comprises a tensile E modulus value **about 244% to about 276%** less than Examples 4-8 in Fischer, et al.

Additionally, the Charpy impact toughness values and the Charpy notched impact toughness values of Examples 4-8 in Fischer, et al, as well as Applicant's exemplary propylene copolymer, are provided in the chart below.

|   | Ex. 4<br>(kJ/m <sup>2</sup> ) | Ex. 5<br>(kJ/m <sup>2</sup> ) | Ex. 6<br>(kJ/m <sup>2</sup> ) | Ex. 7<br>(kJ/m <sup>2</sup> ) | Ex. 8<br>(kJ/m <sup>2</sup> ) | Instant<br>Exemplary<br>Copolymer<br>(kJ/m <sup>2</sup> ) |
|---|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|---|
| Charpy<br>Impact<br>Toughness<br>(+23°C)            | 200                           | 220                           | 228                           | 236                           | -                             | NF*   |
| Charpy<br>Impact<br>Toughness<br>(0°C)              | 80                            | 85                            | 96                            | 115                           | 101                           | NF*   |
| Charpy<br>Impact<br>Toughness<br>(-20°C)            | 16                            | 16                            | 16                            | 17                            | 16                            | 257   |
| Charpy<br>Notched<br>Impact<br>Toughness<br>(+23°C) | 4.0                           | 4.4                           | 4.9                           | 5.3                           | 5                             | 45.0  |
| Charpy<br>Notched<br>Impact<br>Toughness<br>(0°C)   | 1.2                           | 1.4                           | 1.5                           | 1.5                           | 2                             | 32.5  |
| Charpy<br>Notched<br>Impact<br>Toughness<br>(-20°C) | 1.0                           | 0.9                           | 0.9                           | 0.9                           | 1                             | 2.5   |

\* NF: No Fracture

Accordingly, with respect to the Charpy impact toughness values and the Charpy notched impact toughness values, Applicant's exemplary copolymer unexpectedly comprises much higher values.

In light of the above, claims 17-30 are therefore believed to be patentable over Fischer, et al. Accordingly, reconsideration and withdrawal of the rejection is respectfully requested.

**3. Rejection of Claims 17-30 Under 35 U.S.C. §103(a)**

The Office Action states,

Claims 17-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fischer et al (US 6,248,829) as applied to claims 17-20, 22 and 25-30 above, and further in view of Mehta et al (US 6,583,227), newly cited.

The patent to Fischer et al does not teach the inclusion of a nucleant additive in the disclosed composition.

The reference to Mehta et al teaches at column 18 (lines 6-17) additives that are 'commonly employed with plastics' including the polypropylene resins taught by the reference, include nucleants.

Subsequent use of a nucleant, as taught by Mehta et al, in the composition of Fischer et al for the benefits thereof would have been *prima facie* obvious to a skilled artisan.

**RESPONSE**

Applicant respectfully traverses the rejection of claims 17-30.

The U.S. Supreme Court in *Graham v. John Deere Co.*, 148 U.S.P.Q. 459 (1966) held that non-obviousness was determined under §103 by (1) determining the scope and content of the prior art; (2) ascertaining the differences between the prior art and the claims at issue; (3) resolving the level of ordinary skill in the art; and, (4) inquiring as to any objective evidence of non-obviousness.

Accordingly, for the Examiner to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine

reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. See MPEP §2142.

Arguments *supra* regarding Fischer, et al. are incorporated herein by reference in their entirety. With respect to the instant rejection, the current Office Action states,

The patent to Fischer et al does not teach the inclusion of a nucleant additive in the disclosed composition.

In order to bridge this acknowledged gap, the current Office Action then states,

The reference to Mehta et al teaches at column 18 (lines 6-17) additives that are 'commonly employed with plastics' including the polypropylene resins taught by the reference, include nucleants.

Subsequent use of a nucleant, as taught by Mehta et al, in the composition of Fischer et al for the benefits thereof would have been prima facie obvious to a skilled artisan.

However, first and foremost, U.S. Patent 6,583,227 (herein referred to as "Mehta, et al.") discloses in col. 2, line 60 - col. 3, line 6,

The objects of the invention are achieved by providing a **propylene homopolymer** and copolymer having a broad molecular weight distribution, while maintaining a high level of crystallinity. This is achieved by providing in one embodiment a TCR propylene polymer comprising: (a) from 10 to 90 wt % **homopolymerized crystalline propylene** units; and (b) from 90 to 10 wt % crystalline propylene copolymer wherein the wt % of the comonomer based on the total weight of the polymer is in the range of from 0.05 to 15; wherein each polymer is prepared in a separate stage utilizing in each stage a metallocene catalyst

system comprising two metallocene catalyst components and wherein the polymer has a molecular weight distribution (Mw/Mn) in the range of from 2.1 to 10. (Emphasis added).

Alternatively, Applicant is currently claiming a propylene copolymer composition comprising, at the very least, A) **a propylene copolymer** containing from 1 to 20% by weight of olefins other than propylene; and B) at least one **propylene copolymer** containing from 10 to 30% by weight of olefins other than propylene. Accordingly, since Mehta, et al. clearly relates to completely different polymers, Applicant respectfully believes the current rejection should be withdrawn for this reason alone.

Notwithstanding, as outlined *supra*, Applicant has unexpectedly found the currently claimed propylene copolymers comprise much lower tensile E modulus values, much higher Charpy impact toughness values, and much higher Charpy notched impact toughness values than the compositions of Fischer, et al. Additionally, Mehta, et al. does not remedy the deficiencies of Fischer, et al. In fact, as outlined *supra*, Mehta, et al. discloses completely different polymer compositions.

In light of the above, claims 17-30 are therefore believed to be patentable over Fischer, et al. in view of Mehta, et al. Accordingly, reconsideration and withdrawal of the rejection is respectfully requested.



**4. Rejection of Claims 17-27 Under 35 U.S.C. §103(a)**

The Office Action states,

Claims 17-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Datta et al (US 6,635,715), newly cited.

The reference to Datta et al teaches the production of a reactor blend of a propylene copolymer blend that may comprise a propylene copolymer, designated as the First Polymer Component (FPC), having an alpha olefin content overlapping with the recited herein for the second copolymer at 10 to 30% by weight at column 5 (line 65) to column 6 (line 46), which alpha olefin may be ethylene, with the first recited copolymer, designated as the Second Polymer Component (SPC), having an alpha olefin content (ethylene) overlapping with that recited herein at 5 to 20% by weight at column 8 (lines 24-49). The range for inclusion of the two polymers is shown at the Abstract. The contemplated molecular weights and MWD are shown at column 9 (lines 34 et seq.). Note the Examples.

Although the reference is silent as regards the haze values, a skilled artisan producing an identical product would have a high expectation to achieve the same haze values recited herein. Likewise, the amount of extractables would be expected, or easily controlled, as crosslink density will determine soluble fractions and a skilled artisan would know to manipulate these values for desired end-use characteristics. As such, a skilled artisan would have a high level of expectation of success following the teachings of the reference to achieve the claimed inventions.

**RESPONSE**

Applicant respectfully traverses the rejection of claims 17-27.

The U.S. Supreme Court in *Graham v. John Deere Co.*, 148 U.S.P.Q. 459 (1966) held that non-obviousness was determined under §103 by (1) determining the scope and content of the prior art; (2) ascertaining the differences between the prior art and the claims at issue; (3) resolving the level of ordinary skill in the art; and,

(4) inquiring as to any objective evidence of non-obviousness.

Accordingly, for the Examiner to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. See MPEP §2142.

Arguments *supra* regarding Fischer, et al. and Mehta, et al. are incorporated herein by reference in their entirety.

With respect to instant rejection, the current Office Action states,

The reference to Datta et al teaches the production of a **reactor blend** of a propylene copolymer blend that may comprise a propylene copolymer. . . . (Emphasis added)

However, Datta, et al. discloses in col. 10, 16-47, and col. 11, 57-62,

#### The Blend of First and Second Polymer Components

The copolymer blends of first polymer component and second polymer component of the instant invention may be prepared by any procedure that guarantees the intimate admixture of the components. For example, the components can be combined **by melt pressing the components together** on a Carver press to a thickness of about 0.5 millimeter (20 mils) and a temperature of about 180° C., rolling up the resulting slab, folding the ends together, and repeating the pressing, rolling, and folding operation about 10 times. **Internal mixers** are particularly useful for solution or **melt blending**. Blending at a temperature

of about 180° C. to 240° C. in a Brabender Plastograph for about 1 to 20 minutes has been found satisfactory. Still another method that may be used for admixing the components involves **blending the polymers in a Banbury internal mixer** above the flux temperature of all of the components, e.g., 180° C. for about 5 minutes. The complete admixture of the polymeric components is indicated by the narrowing of the crystallization and melting transitions characteristic of the polypropylene crystallinity of the components to give a single or a small range crystallization and melting points for the blend. These **batch mixing** procedures are typically supplanted by continuous mixing processes in the industry. These processes are well known in the art and include single and twin screw mixing extruders, static mixers for mixing molten polymer streams of low viscosity, impingement mixers, as well as other machines and processes, designed to disperse the first polymer component and the second polymer component in intimate contact.

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The mechanism by which the desirable characteristics of the present copolymer blends are obtained is not fully understood. . . . However, **the intimate blending** of the polymers having the required crystallinity characteristics apparently results in a crystallization phenomenon that modifies the other physical properties of the propylene/alpha-olefin copolymer, thus measurably increasing its commercial utility and range of applications. (Emphasis added)

Accordingly, Applicant respectfully traverses the Examiner's contention Datta, et al., ". . . teaches the production of **a reactor blend**". In fact, as outlined *supra*, Datta, et al. discloses blending two polymer components via **physical blending procedures**, and that such physical blending is critical to the production of the resultant polymers disclosed therein. This fact is clearly further illustrated given every working example, whether exemplary or

comparative, demonstrates physically blending the two polymer components together. However, Applicant is currently claiming a process wherein the propylene copolymer composition is obtained from a two-stage or multistage polymerization process comprising a catalyst system comprising a metallocene compound, wherein the catalyst system is used in each polymerization stage. Accordingly, Applicant respectfully believes the current rejection should be withdrawn.

Furthermore, Applicant respectfully traverses the Examiner's contention that,

a skilled artisan producing an identical product would have a high expectation to achieve the same haze values.

. . . .

as well as,

. . . the amount of extractables would be expected, or easily controlled, as crosslink density will determine soluble fractions and a skilled artisan would know to manipulate these values for desired end-use characteristics. As such, a skilled artisan would have a high level of expectation of success following the teachings of the reference to achieve the claimed inventions."

However, given the differences outlines *supra*, Applicant respectfully believes any reliance on inherency is unfounded. "To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is **necessarily** present in the thing described in the reference. Inherency, however, may **not** be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not

sufficient.'" *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999). (Emphasis added); See MPEP §2163.07(a).

In light of the above, claims 17-30 are therefore believed to be patentable over Datta, et al. Accordingly, reconsideration and withdrawal of the rejection is respectfully requested.

#### **5. DOUBLE PATENTING REJECTION**

Applicant kindly requests the Examiner to hold the provisional double patenting rejection to co-pending Application Serial No. 10/517,580 in abeyance since neither application has issued as a patent.

#### **CONCLUSION**

Based upon the above remarks, the presently claimed subject matter is believed to be novel and patentably distinguishable over the references of record. The Examiner is therefore respectfully requested to reconsider and withdraw all rejections and allow all pending claims 17-30. Favorable action with an early allowance of the claims pending in this application is earnestly solicited.

The Examiner is welcomed to telephone the undersigned practitioner if he has any questions or comments.

Serial No. 10/517,588

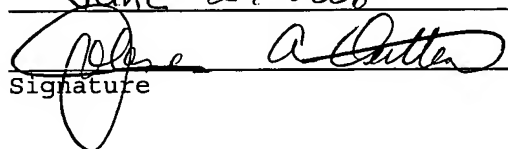
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